BULLETIN
OF THE
TORREY BOTANICAL CLUB.

Vol. XIX.] New York, February 10, 1892. [No. 2.

Review of the North American Species of the Genus Xyris.

By Heinrich Ries.

Plate CXXIV.

While engaged in a study of this genus during the past winter, I found great confusion existing among the various species. The most complete list of the North American species thus far published is in Chapman's Flora of the Southern States; but even here the descriptions are hardly sufficiently accurate, and all the species cannot be maintained. It has therefore seemed to me desirable to present this revision of the genus, the arrangement of which is based on specimens in the herbarium at Harvard College, Agricultural Department at Washington, and those of Messrs. J. D. Smith, W. M. Canby, as well as the herbarium of Columbia College. The majority of the species are confined to the Southern States. The genus may be defined as follows:

Perennial, stemless herbs. Roots usually fibrous, sometimes bulbous. Leaves linear or linear-lanceolate, collected about the base of the naked scape. Scales convex, horny, thicker in the middle. Flowers single in the axils of the scales, which are collected into a more or less dense spike. Sepals three, the two lateral ones glumaceous and keeled, enclosing a third membranous one. Petals three, clawed. Stamens six, three of which are fertile and situated on the claws of the petals, the alternate ones being sterile. Anthers linear. Ovary one-celled, three-valved; the valves bearing the placenta along the middle. Stigma one, style three-cleft. The modifications of the keel of the lateral sepals form valuable specific characters.

A. Sheath of scape longer than the leaves.

1. XYRIS BREVIFOLIA, Michx.

X. brevifolia, Mich. Fl. Bor. Amer. i. 23 (1803).

Scape terete, smooth, occasionally spirally twisted and 4-12 inches high. Leaves linear, narrow, edges smooth, 1-3 inches long; spikes globose, light brown; scales usually lacerate on the outer margin, oblong; wingless keel of lateral sepals very slightly crenulate.

Florida.—Jacksonville, A. H. Curtiss, No. 3,000; St. Augustine, W. M. Canby, 1869; Tampa, J. D. Smith; Herb. Dr. Chapman; Indian River, Ed. Palmer, No. 576; Apalachicola, B. F. Saurman; Manatee, A. P. Garber, F. Cozzans, Dr. Bacon; De Land, G. D. Hulst (1891); Lloyd's, L. H. Lighthipe (1891); Lake Winnemissett, G. D. Hulst (1891).

2. XYRIS FLABELLIFORMIS, Chapm.

X. flabelliformis, Chapm. Fl. S. U. S. 498 (1860).

X. scirpoides, Chapm. Mss. in Herb. Col. Coll.

X. brevifolia, *β subcarinata*, Chapm. Mss. in Herb. Col. Coll.

Scapes slender, usually spirally twisted, 4-12 inches high, clustered; leaves linear-lanceolate to linear, short, spreading; spikes globose to oblong, few flowered; bracts light brown, angular, their margins entire; lateral sepals shortly cut-fringed on the wingless keel.

Florida.—Ex. Herb. S. T. Olney; Herb. Col. Coll.; Hibernia, W. M. Canby; Manatee Co., J. T. Rothrock; Jacksonville, A. H. Curtiss, No. 3,001.

B. Sheath of scape shorter than leaves.

* Narrowly winged keel of lateral sepals fringed with hairs.

3. XYRIS AMBIGUA, Beyr.

X. ambigua, Beyr. in Kunth, Enum. iv. 11 (1843).

X. stricta, Chapm. Fl. S. U. S. 498 (1860).

X. rhombipetala, Sauv. Fl. Cub. 160 (1868).

Scape rigid, slightly twisted, furrowed, two-edged above, 2-3 feet high; leaves linear-lanceolate, 6-12 inches long, smooth and shining; spikes ovate-lanceolate, oblong or cylindric, generally acute, sometimes obtuse, many-flowered; bracts convex, light brown; lateral sepals lanceolate, shining, the upper two-thirds of the narrowly winged keel fringed and tapering at both ends.

X. stricta, Chapm. is undoubtedly the same as *X. ambigua*. Dr. Chapman speaks of the leaves of the former as being rough-edged, while those of the latter are smooth. I am unable to find such a difference. Again the heads of *ambigua* are said to be oblong, ovate-lanceolate or acute, while those of *stricta* are oblong or cylindric. The heads of *ambigua* are often obtuse and cylindric, while those of *stricta* are sometimes acute. I can find no constant difference in the shape of the sepals.

In *X. rhombipetala*, Sauv. the shape of the sepal and whole form of the plant are the same as in *ambigua*.

North Carolina.—Wilmington, W. M. Canby.

South Carolina.—Society Hill, M. A. Curtis; Sumter Co. J. D. Smith.

Florida.—Apalachicola, A. H. Curtiss, No. 3,002; Walton Co., A. H. Curtiss, No. 16; Chapman.

Texas.—Wright, Herb. Harvard Coll.; Hempstead, E. Hall, No. 671; Hardin Co., G. C. Nealley (1884); Austin, F. Rugel.

4. XYRIS FLEXUOSA, Mühl.

X. jupicai, Michx. Fl. Bor. Amer. i. 23 (1803). ?
X. *flexuosa*, Mühl. Cat. 5 (1813).
X. bulbosa, Kunth, Enum. iv. 11. (1843).
X. scabra, Engelm. Mss. in Herb. Col. Coll.

Scape twisted, straight or spiral, two-edged above; root somewhat bulbous; leaves linear, twisted; spike globose, few flowered; lateral sepals linear, curved, fringed the whole length of the wingless keel.

New Hampshire.—Jefferson Highlands, T. G. White.

Connecticut.—Waterford, W. H. Leggett; New Haven, in Herb. Harv. Coll.

Rhode Island.—Providence, S. T. Olney.

Massachusetts.—Salem, J. W. Chickering, Jr.

New York.—Herkimer Co., J. A. Paine; Cold Spring, Long Island, H. Ries.

New Jersey.—A. Gray; Atlantic Co., C. F. Parker.

Pennsylvania.—Chester Co., in Herb. W. M. Canby (1865); C. W. Short (1842).

Delaware.—Newcastle, Herb. W. M. Canby.

Maryland.—Stockton, H. H. Rusby.

District of Columbia.—Washington, L. F. Ward; Holmead Swamp, G. Vasey.

North Carolina.—Wilmington, W. M. Canby.

Texas.—Henderson Co., J. D. Smith; Choctaw Agency, J. M. Bigelow; Hempstead, E. Hall, No. 673; Cypress City, G. Belt, No. 756, (1876); Tex. Flor. Exs. No. 186; Hardin Co., G. C. Nealley, (1884).

Arkansas.—Southwest Arkansas, F. L. Harvey, No. 133.

Illinois.—Mason Co., E. Hall; Dixon, G. Vasey.

Wisconsin.—Marquette Co., J. Townley.

** The winged keel of the lateral sepals toothed or fimbriate.

5. XYRIA MONTANA, n. sp.

Scape slender, 3-12 inches high, straight and twisted, two-edged above; roots fibrous; leaves linear, 2-6 inches long, spikes globose to ovoid, scales rounded, upper margin finely fimbriate, lateral sepals linear, the upper third of the winged keel irregularly serrate-fimbriate.

This plant has been called *X. flexuosa* var. *pusilla*, A. Gray, Man. Ed. 5, p. 548 (1868). The name *pusilla*, however, belongs to a previously discovered species from New Holland.—R. Br. Prodr. Fl. Aust. 256 (1810).

Small specimens of *X. flexuosa* have been erroneously referred to this.

Localities thus far known are:

Pocono Mt., Pa., Traill Green, T. C. Porter, 1876; Base of White Mts., A. Gray; Herkimer Co., N. Y., J. A. Paine; High Bogs, Westchester Co., N. Y., Hoysradt; Eagle Harbor, Keweenaw Co., Mich., Robbins; Leverett, Mass., H. G. Jesup; Pine Barrens of New Jersey, Torrey; Open Swamps, Akron, Ohio, C. Mohn; Salem, Mass., J. H. Sears; Quaker Bridge, N. J.

6. XYRIS ELLIOTTII, Chapm.

X. ELLIOTTII, Chapm. Fl. S. U. S. 498 (1860).

Scape slender, twisted, straight, two-edged throughout the greater part of its length; leaves linear, twisted, 2-8 inches long, the upper two-thirds of the leaf a darker shade of brown than the lower third, spikes ovate, scales lacerate on the upper margin, lateral sepals lanceolate, the winged keel incised-fimbriate.

Florida.—Jacksonville, A. H. Curtiss, No. 3105; Dr. Chapman, 1860; C. F. Powell; Miami, A. P. Garber, No. 287, 1877; Tampa, J. D. Smith; St. Augustine, Herb. Harv. Coll.; Apalachicola, B. F. Saurman, 1867.

7. XYRIS COMMUNIS, Kunth.

X. communis, Kunth, Enum. iv. 10. (1843).
X. difformis, Chapm. Fl. S. U. S., 500 (1860).
X. gymnoptera, Griseb. Cat. Pl. Cub. 223 (1866.)
X. partita, Chapm. Mss. in Herb. Col. Coll.

Scapes straight, twisted, two-edged above, one-angled below, leaves linear to linear-lanceolate, 4-12 inches long; spikes many-flowered, ovate or round; margin of scale usually smooth; lateral sepals lanceolate, the upper two-thirds of the winged keel fimbriate.

X. difformis, Chap., is the same as *X. communis*, Kunth, the sepals and whole appearance of the two plants being alike.

The comparisons of *communis* and *gymnoptera* with *difformis* were based on C. Wright, Cuba, No. 3734; Eggers, St. Domingo, No. 2101, det. by Dr. Urban, at Berlin; Sintenis, Porto Rico, 6764 and 934, det. by Urban, and Turckheim, Guatemala, No. 201, det. by J. D. Smith.

Maryland.—Salisbury, W. M. Canby.
South Carolina.—Aiken, H. W. Ravenel.
Florida—Dr. Chapman; Mayport, H. D. Keeler.
Louisiana.—Opelousa, G. W. Letterman.
Alabama.—Lee Co., J. D. Smith.

8. XYRIS SEROTINA, Chapm.

X. serotina, Chapm. Fl. S. U. S , 500 (1860).
X. fascicularis, Chapm. Mss. in Herb. Col. Coll.

Scape straight, twisted, striate, 2-edged above and 1-1½ feet high; leaves linear-lanceolate, surface papillose, wide, spikes ovoid or globose, scales rounded, lateral sepals linear, upper third of keel-wing incised-fimbriate.

Florida.—Apalachicola, A. W. Chapman, 1861.

There are some small specimens in the Columbia College Herbarium, collected by Dr. Hale in Louisiana. The leaves are 1-2 inches long; scape 3-5 inches high. The sepals are those of *serotina* and the leaves show the papillose surface, characteristic of *serotina*, near the base. They are probably young plants of this species.

9. XYRIS CAROLINIANA, Walt.

X. Caroliniana, Walt. Fl. Car. 69 (1788).
X. elata, Chapm. Fl. S. U. S. 501 (1860).
X. serotina, var. Chapm. Mss. in Herb. Col. Coll.
X. graminifolia, Chapm. Mss. in Herb. Col. Coll.

Scapes solitary or clustered, twisted and two-edged above, 1-2 feet high; leaves linear or linear-lanceolate, 4-15 inches long; spikes globose or ovate, or sometimes oblong; scales brown, becoming curled and the margin lacerated with age; lateral sepals linear, the upper third of the narrowly winged keel incised-serrate.

Forms found in New England agree with Dr. Chapman's type of *elata*, and if this species could be maintained would extend its range. This, however, seems doubtful, as forms intermediate between *Caroliniana* and *elata* exist, and show that the two pass into each other.

Massachusetts.—Uxbridge, J. W. Robbins, 1885; Waltham, T. Morong; Milton Co., W. Boott, 1871.

Rhode Island.—Cumberland, R. I. plants No 834, in Herb. Col. Coll.; East Greenwich, J. W. Congdon, 1878.

New York.—Pine Plains, Hoysradt; Long Island, Wading River, E. S. Miller, 1877.

New Jersey.—Pine barrens, A. Gray; Manchester, T. C. Porter; Forked River, N. L. Britton; J. Macnab, No. 183.

Delaware.—Sandy swamps, Herb. Col. Coll., 1861; Ellendale, 1874.

Maryland—Snow Hill and swamps E. Maryland, W. M. Canby; Stockton, H. H. Rusby.

North Carolina.—Henderson Co., J. D. Smith; Wilmington, in Herb. Harv. Coll.

South Carolina.—Greenville Co., J. D. Smith; Santee Canal, W. Ravenel; Society Hill, M. A. Curtis.

Florida.—Chapman; Tampa, A. P. Garber.

Alabama.—A. Winchell.

Louisiana.—Dr. Hale.

10. XYRIS IRIDIFOLIA, Chapm.

X. iridifolia, Chapm. Fl. S. U. S. 501 (1860).
X. rigida, Chapm. Mss. in Herb. Col. Coll.
X. conifera, Chapm. Mss. in Herb. Col. Coll.

Scape stout, straight, two-edged and flattened above, 1½–3

feet high; leaves broadly linear, with acuminate points, 1–2 feet long; spike oval or oblong, many-flowered; scale dark, margin entire, brown, thick, convex and becoming more so with age; lateral sepals rather short, linear, thin, the winged keel irregularly incised-fimbriate throughout its length.

Florida.—A. W. Chapman.
Alabama.—Buckley; Gadsden, G. R. Vasey.
South Carolina.—Santee Canal, Ravenel.
Texas.—Houston, E. Hall, No. 674; mouth of Brazos River, F. Lindheimer.

11. XYRIS PLATYLEPIS, Chapm.

X. platylepis, Chapm. Fl. S U. S. 501 (1860).

Scapes straight, twisted, two-edged above, 1½–3 feet high; leaves linear, lanceolate, pointed, somewhat twisted, 9–15 inches long; spikes cylindric or oval, obtuse or acute and often loosely flowered in the older specimens; scales orbicular, the lateral margins curling backward with age; lateral sepals long, narrow, the upper half of the narrowly winged keel serrate.

South Carolina.—Aiken, H. W. Ravenel, No. 4 and No. 3, 1866; Charleston, A. H. Curtiss.
Florida.—Jacksonville, A. H. Curtiss, No. 3011; Apalachicola, B. F. Saurman.

12. XYRIS FIMBRIATA, Ell.

X. fimbriata, Ell. Bot. S. Ca. and Ga. i. 51 (1816).

Scapes straight, twisted, two-edged above, 2–4 feet high; leaves long, broadly linear, with acuminate point, 1–2 feet long; spikes cylindric or globose, many-flowered; scales wider above the middle, margin entire; lateral sepals somewhat long, linear, long-fimbriate above the middle.

New Jersey.—Quaker Bridge, C. F. Parker, 1866; Atsion, C. F. Parker; Pine barrens, J. D. Smith.
South Carolina.—Society Hill, M. A. Curtis.
Florida.—J. H. Simpson.
Virginia.—Dismal Swamp, T. Morong.
Alabama.—Mobile, C. Mohr.
Mississippi.—Mississippi City, J. D. Smith.

13. XYRIS TORTA, Smith.

X. torta, Smith, in Rees Encycl. (1819).
X. conocephala, Sauv. Fl. Cub. 159 (1868).

Scapes spirally twisted, 1–2 feet high, one-edged; roots bulbous, shining; leaves linear, twisted, 6–15 inches long; spikes cylindric, pointed; scales light brown, twice as long as wide, the apex serrulate; lateral sepals long, linear, exserted, the upper portion of the keel-wing short-fimbriate.

New Jersey.—Quaker Bridge, D. C. Eaton, 1860.

North Carolina.—G. McCarthy, No. 12½.

South Carolina.—Florence, J. D. Smith, No. 233; Society Hill, M. A. Curtis.

Georgia.—Columbus, J. D. Smith, 1883.

Florida.—Mayport, H. D. Keeler; Key West, Blodgett; Apalachicola, B. F. Saurman; Tampa, A. P. Garber, No. 20, 1876, white flowers; Jacksonville, A. H. Curtiss, No. 3013.

Louisiana.—Dr. Gates.

Texas.—Hempstead, E. Hall.

* * *Leaves filiform.

14. XYRIS BALDWINIANA, R. & S.

X. Baldwiniana, R. & S. Mant. i. 351 (1822).

X. tenuifolia, Chapm. Fl. S. U. S. 502 (1860).

X. setacea, Chapm. Fl. S. U. S. 500 (1866).

X. juncea, Baldw. in Ell. Bot. S. C. i. 53 (1816) not R.Br.

X. stenophylla, Chapm. Mss. in Herb. Col. Coll.

Scape slender, straight and twisted, 6–15 inches high; leaves filiform, hollow, 4–8 inches long, twisted and acute; spikes globose or oval; scales round, outer margin usually lacerate; lateral sepals linear, the upper half of keel-wing serrate.

South Carolina.—Society Hill, M. A. Curtis, 1852.

Florida.—Walton Co., A. H. Curtiss, No. 3015; Apalachicola, B. F. Saurman, 1867; Indian River, E. Palmer, No. 577.

Louisiana.—Dr. Hale.

Alabama.—Mobile, C. Mohr.

Texas.—Hempstead, E. Hall, No. 672; Hardin Co., G. C. Nealley, June 1884.

DESCRIPTION OF PLATE CXXV.

1. *X. brevifolia*, Michx. Scale × 7. Sepal × 9
2. *X. flabelliformis*, Chapm. Scale × 9. Sepal × 9.
3. *X. ambigua*, Beyr. Scale × 3. Sepal × 4.
4. *X. flexuosa*, Mühl. Scale × 5. Sepal × 6.
5. *X. montana*, n. sp. Scale × 7. Sepal × 7.
6. *X. Elliottii*, Chapm. Scale × 5. Sepal × 6.
7. *X. communis*, Kunth. Scale × 6. Sepal × 9.

8. *X. serotina*, Chapm. Scale × 6. Sepal × 6.
9. *X. Caroliniana*, Walt. Scale × 6. Sepal × 5.
9a. *X. elata*, Chapm. Sepal × 10. Scale × 9.
10. *X. iridifolia*, Chapm. Scale × 5. Sepal × 6.
11. *X. platylepis*, Chapm. Scale × 5. Sepal × 7.
12. *X. fimbriata*, Ell. Scale × 5. Sepal × 6.
13. *X. torta*, Smith. Scale × 3. Sepal × 3.
14. *X. Baldwiniana*, R. & S. Scale × 6. Sepal × 8.

Eastern and Western Weeds.*

By Byron D. Halsted.

The following remarks are founded upon the reports of a large number of botanists and crop growers throughout the United States, received in response to letters sent to them or questions asked through the public press. Having lived for four years in Iowa and being now a resident of New Jersey, the weeds of these two States have received personal consideration, and therefore these widely separated States will furnish a basis for a comparison of the weeds of the East and the West, not being unmindful of the fact that Iowa represents the central part of our continent, while the West, strictly speaking, reaches beyond the Sierras.

An elaborate list of the weeds of Iowa was published in a bulletin from the Agricultural College in 1888. In this catalogue 297 species were enumerated and classified as follows.

	Annuals.	Biennials.	Perennials.	Total.
Worst Weeds	28	6	17	51
Bad Weeds	34	12	48	94
Indifferent Weeds	22	9	121	152
Total	84	27	186	297

In passing from the worst weeds through the middle class to the indifferent the percentage of perennials rapidly increases.

The eighty-seven foreign species are tabulated as follows:

	Worst.	Bad.	Indifferent.	Total.
Annuals	18	19	7	44
Biennials	3	6	3	12
Perennials	7	12	12	31
Total	28	37	22	87

* Read before the S. P. A. S., Washington, D. C., August 19th, 1891.

The foreign species of the New Jersey list are classified as given below:

	Worst.	Bad.	Indifferent.	Total.
Annuals	21	33	15	69
Biennials	5	10	5	20
Perennials	10	19	12	41
Total	36	62	32	130

It will be seen that there are forty-three more weeds in the New Jersey than in the Iowa list. The increase is mostly among the worse and bad sorts. It will also be observed that half of the New Jersey weeds are foreigners, while for Iowa only much less than one-third.

Turning now to the natives, the Iowa list gives two hundred and ten (210) distributed as follows:

	Worst.	Bad.	Indifferent.	Total.
Annuals	10	16	14	40
Biennials	3	6	6	15
Perennials	10	35	110	155
Total	23	57	130	210

In contrast with this stands the New Jersey list:

	Worst.	Bad.	Indifferent.	Total.
Annuals	9	11	16	36
Biennials	2	5	6	13
Perennials	8	20	58	86
Total	19	36	80	135

There are fifty less of the indifferents, and nearly all of these are among the perennials.

These general summarized facts are not so easy to grasp as particular cases, and therefore we will glance at some of the species. Those of the Iowa list not found in New Jersey are mostly of the third class weeds, native in large part to the prairie, and as a rule quickly disappear when the land is placed under cultivation. Such for example are the lead plant (*Amorpha canescens*), milk vetch (*Astragalus Canadensis*), false indigo (*Baptisia leucophæa*) and button-snake root (*Eryngium yuccæfo-*

lium. To this group belong a large number of the sunflower family, as several asters, solidagos, the compass plant (*Silphium laciniatum*), four species of cone flower (*Echinacea* and *Rudbeckia*), a few sunflowers proper (*Helianthus*), artemesias and hawkweeds (*Hieracium*). The verbenas, especially *V. stricta* and *V. bracteosa*, are missed in the East, and the mountain mint (*Pycnanthemum lanceolatum*) and wild bergamot (*Monarda fistulosa*) do not prevail in waste land in New Jersey. Among the borrages the false gromwell (*Onosmodium Carolinianum*) and the puccoon (*Lithospermum canescens*) common to Iowa do not appear in the New Jersey list, neither do several of the smart-weeds (*Polygonum*).

If we look at the additions made for the eastern list we find present many of the standard weeds; thus wild radish (*Raphanus Raphanistrum*), a rank pepper grass (*Lepedium campestre*) and the turnip (*Brassica campestris*), escaped from cultivation, white melilot (*Melilotus alba*), vetch or tare (*Vicia sativa*), and live for ever (*Sedum Telephium*), are common pests to New Jersey. The button weed (*Diodia teres*) and teasel (*Dipsacus sylvestris*) are not overlooked also, and in the great weed family (Compositæ) wild feverfew (*Chrysanthemum Parthenium*), elecampane (*Inula Helenium*) and salsify (*Tragopogon porrifolius*) figure largely in New Jersey but not in Iowa. Pennyroyal (*Hedeoma pulegioides*) and horehound (*Marrubium vulgare*) are two of the eastern weeds that take the place of some mints that are in the western list. While there are several weedy Ipomœas, the *I. pandurata* or man-of-the-earth is one that will balance several of the same family in the Iowa flora. The goosefoots are numerous in species in the East, and in place of the three for Iowa there are not less than six in New Jersey. There is also a doubling of the number of Amaranths or pigweeds. One of the worst eastern weeds with an equal representative in Iowa is the wild onion (*Allium vineale*), and its own sister the wild leek (*Allium tricoccum*) is a pest also in New Jersey. Among the grasses New Jersey is plagued with, the Bermuda grass (*Cynodon Dactylon*) and two cheats (*Bromus racemosus* and *B. tectorum*) are above what Iowa can claim as pests; while one sedge called nut-grass or coco-grass (*Cyperus rotundus*) is becoming a greater pest each year in the eastern fields.

In short the New Jersey list can be made up from the one

for Iowa by omitting seventy-five (75) of the native prairie plants, mostly perennials, and adding forty-three (43), a large percentage of which are annuals. The only single weed of the first rank stricken from the Iowa list in adapting it for New Jersey is a species of pigweed, but even this within the last year has been found within the latter State. On the other hand there are several first class weeds that are added in the adoption of the western list to the east. Of such, for example are: a pepper grass, the wild radish, two kinds of cocklebur, feverfew, wild onion, wild leek, nut-grass, Bermuda grass, and a kind of chess, or a total of ten of the worst weeds.

That which is true of New Jersey and Iowa likewise holds good for the whole East compared with the whole West. The East is overrun with a larger number of the most aggressive weeds; weeds that assert their ability to resist the forces of the cultivator and plant their banners upon the tilled ground, likewise annual weeds that stock the soil with a multitude of seeds, ready to spring into life whenever an opportunity offers.

Some species of weeds are found everywhere from Maine to California, as *Chenopodium album*, *Amarantus retroflexus*, *Xanthium Canadense*, *Plantago lanceolata*, *Capsella Bursa-pastoris*, and *Portulaca oleracea*. There are others prominent on the Pacific Coast and not elsewhere, as the *Hordeum murinum*, *Silybum Marianum*, and *Malva borealis*. Likewise there are weeds peculiar to the Rocky Mountain region, as the *Iva axillaris*, *Franseria tomentosa*, while on the prairies, especially in Kansas and Nebraska, the following head the list: *Cenchrus tribuloides*, *Asclepias Syriaca*, *Solanum rostratum* and *Helianthus annuus*. In the middle prairie States it is mostly the members of the sunflower family, as the ragweeds and cockleburs, that prevail.

Coming into the central States the list is led by Canada thistle, quackgrass, docks, daisy, chess, plantain, and purslane. If to this list we add wild carrot, onion and parsnip, and the like old foreign enemies, we have the extensive catalogue of these plants pests that prey upon the lands of New England.

Of the weeds of the South as compared with those of the North it has not been the purpose here to speak, nor of the migration of weeds.

Piperaceæ Bolivianæ.

By Casimir DeCandolle.

Piper, L.

Sectio III Steffensia, C. DC. (*in Prodr. v.* 16, 1, *p.* 251).

P. psilophyllum, foliis modice petiolatis ovatis basi ima æquali subacutis utrinque glabris, nervo centrali vix ad ⅓ longitudinis nervos utrinque 4-5 adscendentes quorum infimos fere e basi mittente, petiolo glabro basi vaginante, pedunculo quam petiolus fere triplo breviore glabro, amento ipso maturo quam limbus parum breviore, bracteæ palta triangulari margine hirsuta pedicecelloque hirsuto, baccæ subtetragonæ glabræ vertice in sicco 4-5 anguloso.

In Bolivia ad Undavi, altid. 8,000 ped. (Rusby n. 2186).

Ramuli glabri læves, amentiferi 3 millim. crassi. Limbi in sicco firmo-membranacei subopaci crebre pellucido-punctulati, ad 16 centim. longi ad 9 centim. lati, apice in specimine detriti. Petioli 15 millim. longi. Pedunculi ad 5 millim. longi. Amenta matura 7 millim. crassa, 12 centim. longa. stamina 4. Species *P. obovati* Ruiz et Pav. (Flor. Per. 1 p. 36, Tab. 53 f. b.) affinis limborum forma ab eo recendens.

P. Mapirense, foliis breviter petiolatis elliptico-lanceolatis basi æquali vel subæquali acutis apice obtusiuscule acuminatis supra glabris subtus ad nervos subtillime puberulis, nervo centrali circiter ad ½ longitudinis nervos utrinque 4-5 subadscendentes alternos mittente, petiolo glabro basi ima vaginante, pedunculo glabro petiolum æquante, amento ipso limbum circiter æquante, bracteæ vertice triangulari-truncato margine subtiliter ciliolato, bacca glabra.

In Bolivia ad Mapiri, altitud. 2,500 ped. (Rusby n. 2180).

Ramuli glabri læves ad nodos vix tumidi. Limbi in sicco membranacei opaci crebre pellucido-punctulati circiter 10 centim. longi 5 centim. lati. Petioli 1 centim. longi. Amenta matura 3 millim. crassa. Stamina 4, antheris rotundatis parvis filamenta circiter æquantibus.

Species *P. Oaxacani*, C. DC. (in Prodr. l. c. p. 274) affinis limborum forma ab eo discrepans.

P. Rusbyi, foliis brevissime petiolatis oblongo-lanceolatis basi leviter inæquali acutis apice longiuscule acute acuminatis supra scabriuscule polosulis subtus parce pilosulis, nervo centrali ultra

⅓ longitudinis nervos adscendentes utrinque 4 mittente, pedunculo glabro petiolum pluries superante, amento ipso florente limbi dimidium circiter æquante, bracteæ pelta triangulari margine ciliolata.

In Bolivia prope Yungas, altitud. 4,000 ped. (Rusby n. 2188).

Ramuli glabri albido-punctulati, amentiferi circiter 2 millim. crassi. Limbi in sicco membranacei virescentes adopectu haud pellucido-punctulati 13 centim. longi 4½ centim. lati. Petioli vix 3 millim. longi. Pedunculi 2½ centim. longi. Amenta apice mucronulata, florentia circiter 2 mill. crassa in sicco pallida fuscescentia. Stamina 4.

Species *P. chimonanthifolii*, Kunth (olim) proxima petiolis brevioribus ramulisque glabrioribus ab eo discrepans.

P. OXYPHYLLUM, foliis brevissime petiolatis ovato-lanceolatis basi subæquali rotundato-cordatis apice longiuscule acute acuminatis mucronulatisque utrinque pubescentibus et ad nervos longe pilosis, nervo centrali circiter ad ½ longitudinis nervos adscendentes utrinque 5 quorum supremos ab aliis remotos mittente, petiolo villoso basi ima vaginante, pedunculo villoso petiolum pluries superante, amento ipso florente quam limbus pluries breviore, bracteæ inferne latæ subcucullatæ dorso hirsutæ apice acute et anguste triangulari cornosulo hirsuto.

In Bolivia prope Yungas, altitud. 4,000 ped. (Rusby n. 2176).

Ramuli juniores longe subochraceo-villosi, amentiferi circiter 2 mill. crassi. Limbi in sicco membranacei grisei subopaci pellucido-punctulati circiter 17 centim. longi vix 5 centim. lati. Petioli 8 millim. longi. Pedunculi 3 centim. longi. Amenta nondum omnino evoluta circiter 4 centim. longa apice breviter mucronata. Stamina 4, antheris ovato-subacutis filamenta circiter æquantibus.

Species *P. Dasypodi*, C. DC. (in Prodr. l. c. p. 304) affinis.

PEPEROMIA, RUIZ ET PAV.

P. NUDICAULIS, foliis alternis modice petiolatis ellipticis basi acutis apice obtusis emarginulatisque utrinque glabris inconspicue 5-nerviis amentis terminalibus filiformibus folia pluries superantibus modice pedunculatis subdensifloris, bractea orbiculari, ovario emerso apice obtuso oblique stigmatifero stigmate minuto.

In Bolivia prope Yungas (Bang n. 331 a).

Glabra inter muscos crescens caulibus erectis 10-12 centim. longis inferne radicantibus in sicco 1 millim. crassis. Limbi in

sicco membranacei subpellucidi subtus haud dense nigro-punctulati circiter 13 millim. longi et 8 millim. lati. Petioli 2 millim. longi. Pedunculi circiter 1 centim. longi. Amenta florentia in sicco 1 millim. crassa.

Species P. *Caldasianae*, C. DC., (in Linn. v. 3, n. f. p. 365). affinis, caulibus glaberrimis et ovario apice obtuso ab ea discrepans.

R. RUSBYI, foliis oppositis breviter petiolatis lanceolatis basi et apice acutis utrinque glabris 5 nerviis, amentis apice caulis 2, axillaribus pedunculatis ipsis folia fere triplo superantibus densifloris, bractea ovato-rotunda, ovario subimmerso oblongo-ovato, stigmate terminali carnosulo papillosulo, bacca oblongo-ovata.

In Bolivia prope Yungas, altitud. 6,000 ped. (Rusby n. 2214).

Glabra inter muscos crescens caulibus erectis inferne radicantibus in sicco tetragonis. Limbi in sicco coriacei opaci ad 5 centim. longi circiter 5 millim. lati, inconspicue 5-nervii, nervo centrali subtus prominente, cæteris subtilioribus. Petioli circiter 5 millim. longi. Pedunculi 1 centim. longi. Amenta florentia in sicco circiter 2 millim. crassa. Bacca in sicco basi rhachi impressa.

Species *P. tetragonæ*, Ruiz et Pav. Flor. Peruv. v. 1, p. 31, tab 47. affinis sed foliis multo minoribus ab ea distincta.

P. BANGII, foliis quaternis longiuscule petiolatis lanceolatis basi et apice acutis utrinque glabris 3-nerviis, amentis axillaribus terminalibusque longiuscule pedunculatis folia circiter triplo superantibus, bractea ovato-rotunda, ovario immerso.

In Bolivia prope Yungas (Rusby n. 330 a).

Erecta, glabra, caulis in sicco coriaceus 5 millim. crassus, ramuli erecti ad 20 centim. longi. Limbi in sicco firmo-opaci crebre pellucido-punctulati. Nervi. subtus prominuli. Petioli circiter 1 centim. longi. Pedunculi ad 2½ centim. longi. Amenta florifera in sicco 3 millim. crassa. Bractea pedicellata. Ovarium ovatum superne haud contractum apice imo stigma carnosulum gerens.

Species *P. Victorianæ*, C. DC. Prodr. l. c. p. 449 affinis, ab ea foliis minoribus et in sicco crassioribus cauleque haud alato recedens.

Botanical Notes.

Note on Polygala. In the January BULLETIN, p. 32, in noting Dr. Wheelock's recent paper on *Polygala* (MEMOIRS, Vol. ii. No. 4) we tried to correct a printer's blunder in the spelling of *P. ovatifolia*, A. Gray. What we tried to say and what we now again endeavor to point out is that No. 36, on p. 148, should be *P. ovatifolia*, A. Gray and not *P. ovalifolia*, A. Gray, as printed. The spelling of *P. ovalifolia*, DC. on p. 149 is uniformly correct. In the key to the species, both this and *P. Californica*, No. 33, are correct.

Reviews of Foreign Literature.

Revisio Generum Plantarum vascularium omnium atque cellularium multarum secundum Leges Nomenclaturæ internationales, cum Enumeratione Plantarum Exoticarum in Itinere Mundi collectarum. Otto Kuntze. (8vo. 2 volumes, pp. clxvix. 1011. Leipzig, London, Milan, New York and Paris, 1891).

In the course of Dr. Kuntze's extensive travels in all parts of the world since the year 1874, he accumulated a collection of plants aggregating 7706 numbers. In the subsequent study of this great amount of material, carried on principally in the Herbaria at Berlin and at Kew, he was confronted with the problem of determinating on the system of nomenclature he should adopt for them. He wisely decided to adhere strictly to the principles of priority laid down by the Paris Congress of botanists, and his results are now given to the world in the two fine volumes before us. In addition to the elaboration of his own collections, he undertook an even more extensive work, and one of very much more general importance. He decided to investigate the status of every generic name in use, and to point out the oldest available one for every genus recognized by him, visiting for this object the most extensive and complete botanical libraries in Europe. It is interesting to note in this connection that he found the Library of the British Museum of Natural History superior to all others.

The chapters of this book treat of; I. An Itinerary of his travels; II. A criticism of Durand's "Index Generum Plantarum;"

III. An account of the errors in that work; IV. Pfeiffer's "Nomenclator Botanicus," V. Linnæus' relations with his contemporaries; VI. The changes of names made by Linnæus and his contemporaries; VII. Instability of Nomenclature from the time of Linnæus to the end of the eighteenth century; VIII. Considerations on the founding of generic names; IX. Changes of names by the elevation of sections to genera and for linguistic reasons; X. Homonyms, a cause of the changing of names and a lasting source of instability in nomenclature; XI. The simultaneous appearance of publications and the incompleteness of libraries; XII. Bentham and Hooker's "Genera Plantarum;" XIII. Convenience as a hindrance to the acceptance of correct names; XIV. Linnæus' "Systema Naturæ," Edition 1., as the beginnning of generic nomenclature; XV. Suggested modifications of the international laws of nomenclature of 1867; XVI. Pritzel's "Thesaurus Literaturæ Botanicæ;" XVII. Modern English nomenclature; (this chapter written in English, and especially interesting to English botanists). Then follows a list of the plants collected by the author, with all generic priorities in the entire vegetable kingdom which he has ascertained, this occupying the greater part of the book.

We have neither leisure nor space to satisfactorily present the arguments advanced and the general results arrived at in this great work. It must be in the hands of every working botanist, whether he agree with the author wholly or in part. The changes in names which he proposes are for the most part based on perfectly sound principles, and will, no doubt, be widely accepted. We think it a great mistake to go back to the first edition of Linnæus' Systema for generic names, and believe that the first edition of his "Genera Plantarum" of 1737 to be the most satisfactory point of departure. It is to be noted that Dr. Kuntze has no sympathy with citing authors older than the Linnæan time, remarking that a fixed basis is essential for the beginning of nomenclature, which is just the position I have repeatedly taken. I consider the argument for the "Systema" of 1735 as not convincing, while the reasons for the "Genera" of 1737 are entirely satisfactory.

As to the citation of species and their authors he has an en-

tirely new method to propose. He would write, for example, *Castalia odorata*, Greene (L.), that is, to cite the original author of the specific name behind the author of the binomial. Just what is to be gained by this method over the one so widely in vogue of reversing this arrangement and writing *Castalia odorata* (L.) Greene, is not obvious. Indeed the appearance of this book will, I believe, tend to bring the method of the American Ornithologists and other zoologists into increasing favor, and cause many to write *Castalia odorata* (L.), which method Dr. Kuntze stigmatizes as false and "often used by modesty or by negligence or by fear of responsibility." However, if this is not employed, and there is a general acceptance of the generic names pointed out by the author as having priority, it will necessitate writing Kuntze (contracted to OK by Dr. Kuntze) after surely not less than 25,000 specific names, a positively fearful thing for Americans to contemplate.

While we consider that Dr. Kuntze has gone too far in beginning his nomenclature with the Linnæan Systema of 1735, we do not think that he has gone quite far enough in other directions. He has not accepted the important principle that a name once used for an organism ought to be applicable to that and to no other, the doctrine of "once a synonym always a synonym," which would effectually prevent the instability of nomenclature due to homonyms; he has not accepted specific names identical with generic, making here an exception to his otherwise stringent rules of priority, and while he accepts the idea of priority of place being as important as priority of time, it is only with important modifications, which do not appear to me to have any sound basis. The only rule that can be effective in this matter must be one without exceptions, if we are to arrive at fixed results.

Dr. Kuntze's chapter on the dates of publication of the writings of the older authors is worthy of the closest attention. It supplies information which only a favored few have at their command, and for which he will have the lasting gratitude of botanists generally for years to come.

The principal changes suggested for the generic names of North American plants are appended. I have annotated a few of them. It should be stated that in all cases which I have had

time to examine I find his dates and facts entirely correct.

POLYPETALÆ.

Clematitis, L. (1735)=*Clematis*, L. (1737).

This comes from going back to the Systema Plantarum of 1735, which I do not think desirable.

Helleborodes, Ludw. (1737), Adans. (1763), *Eranthis*, Salisb. (1807).

Beurera, Ehret (1755)=*Calycanthus*, L. (1759).

Badianifera, L. (1749)=*Illicium*, L. (1759).

Tulipifera, Ludw. (May, June, 1737)=*Liriodendron*, L. (Oct. 1837).

Cebatha, Forsk. (1775)=*Cocculus*, DC. (1818).

Leuconymphæa, Ludw. (1737)=*Castalia*, Salisb. (1805).

Bicuculla, Borkh. (1797)=*Adlumia*, Raf. (1808).

This I consider unavailable because *Bicuculla* was used by Adanson in 1763 for species of *Diclytra*. Rafinesque's name should stand, in my opinion.

Capnodes, Ludw. (1737)=*Neckeria*, Scop. (1777)=*Corydalis*, DC. (1805).

In the BULLETIN, vol. xviii. 265, I noted that *Neckeria*, Scop. antedates *Corydalis*, DC., but I was not then aware that *Capnodes* had been used for the genus within the Linnæan time.

Capnorchis, Ludw. (1737)=*Bicuculla*, Adans. (1763)=*Diclytra*, Borck. (1797).

Mosenthinia, Kuntze=*Glaucium*, Mill. (1737), non *Glaux*, L.

Dr. Kuntze regards *Glaux* and *Glaucium* as the same word, and so renames the latter in honor of his sister and her husband.

Alyssum, L. The American species which have long been known as *Vesicarias* and which Dr. Sereno Watson has separated as *Lesquerella*, are referred to this genus, at least those which have come to the author's notice. He does not allude to Dr. Watson's paper. (Proc. Amer. Acad. xxiii., 249-255 1888).

Coulterina, Kuntze=*Physaria*, Nutt. (1838), not *Physarium*, Pers. (1795), the latter a genus of Fungi. The name is in honor of President John M. Coulter. As Mr. Rose has already dedicated to him a genus *Coulterella* (Contr. U. S. Nat. Herb. No. iii. 71, 1890) in Compositæ, it is unlikely that the one here pro-

posed will be maintained. If two names of different gender, such as *Physaria* and *Physarium*, cannot stand, it seems logical that two genera should not stand for the same person.

Bursa, Guettard (1747)=*Capsella*, Med. (1792).

The name of Shepherd's Purse becomes *Bursa pastoris*.

Cardamine, L. (1735)=*Nasturtium*, R. Br. (1813).

Erysimum, L. (1735)=*Arabis*, L. (1737).

Nasturtium, L. (1735)=*Lepidium*, L. (1737).

Hesperis, L. (1735)=*Sisymbrium*, L. (1737).

The unnecessary mischief of going back to the Systema Plantarum of 1735 is well illustrated by these four citations. It overturns several hundred specific names in very closely related genera, and, so far as I can see, has absolutely nothing to be said in its favor. Herr Kuntze includes *Streptanthus*, Nutt. in *Erysimum* (*Arabis*).

Gansbium, Adans. (1763)=*Erophila*, DC. (1821).

Both names are based on *Draba verna*, L. and if this species is to be kept generically distinct from the other *Drabas*, Adanson's name has priority over that of De Candolle.

Dipetalia, Raf. (1836)=*Oligomeris*, Camb. (1838).

Calceolaria, Lœfl. (1758)=*Pombalia*, Vand. (1771)=*Ionidium*, Vent. (1803.)

Calceolaria was applied to the Scrophulariaceous genus generally so known, by Jussieu in 1759.

Buda is adopted instead of *Tissa*, on the ground that species were first associated with that generic name, although *Tissa* has priority of place. I have pointed out that *Corion*, Mitch. (1748) is probably equivalent to these names of Adanson (see Journ. Bot. xxix. 303). I presume that Dr. Kuntze would not accept *Corion*, however, on account of the previous publication of *Coris*, L.

Stellularia, L. (1748)=*Stellaria*, L. (1753).

Dr. Kuntze does not seem to have noticed that this is also *Alsine*, L. (1737). *Stellaria*, Ludw. (1737) is *Callitriche*, L. (1748).

Lasianthus, Adans. (1763)=*Gordonia*, L., Ellis (1771).

Abutiloides, Sieg. (1736)=*Modiola*, Mœnch. (1794).

This is one year before the Genera Plantarum.

Malache, Trew. (1750)=*Pavonia*, Cav. (1786).

Malveopsis, Presl. (1844)=*Malvastrum*, A. Gray (1849).
Pentagonocarpos, Targ. (1748)=*Kosteletzka*, Presl (1831).
Sphæroma, DC. (1824)=*Sphæralcea*, St. Hil. (1825).

This was first published as a section of *Malva*. Dr. Kuntze maintains that this is equivalent to publication as a genus, and I now think, wisely, although I have not been hitherto willing to accept this view.

Acetosella, Mœhr. (1736)=*Oxalis*, L. (1737).

This is one year before the Genera Plantarum.

Elemifera, L. (1738)=*Amyris*, P. Br. (1756).
Azedarach, L. (1735)=*Melia*, L. (1737).

The name comes in by going back to the Systema.

Iliciodes, Dum. (1802)=*Nemopanthes*, Raf. (1819).
Lupulus, Mill. (1739)=*Gouania*, Jacq (1763).
Pavia, L. (1735)=*Esculus*, L. (1737)=*Æsculus*, L. (1753).

Pawia is the correct orthography according to Kuntze, and is the name to be adopted if we go back to the Systema.

Toxicodendron, L. (1735)=*Rhus*, L. (1737).

A Systema name.

Acuan, Med. (1786)=*Desmanthus*, Willd. (1805).

This name not being latin, the author latinizes it into *Acuania*.

Anil, Ludw. (1737)=*Indigofera*, L. (1738).

Kuntze latinizes this to *Anila*.

Bradburya, Raf. (1817)=*Centrosema*, DC. (1825).

This is taken up from the description, the clue having evidently been furnished by Dr. Watson's Bibliographical Index. Rafinesque's description is based wholly on Robins' account of two leguminous plants, one climbing, the other erect, in his "Voyages dans l'Interieur de la Louisiane," iii. 503, 504 (1807). Rafinesque saw no specimens, and while his *Bradburya* may be based on *Centrosema Virginianum*, as well as on any other plant of the same character, there is no certainty about it, unless Robins' specimen can be turned up. *Centrosema*, DC. was published as a section of *Clitoria* in 1825; the equivalent *Cruminium*, Desv. as a genus in 1826.

Brittonamra, Kuntze=*Cracca*, Benth. not L.
Cacara, Rumpf. (1745-'7)=*Pachyrhizus*, Rich. (1825).

Cæsalpinioides, L. (1738)=*Gleditsia*, L. (1742).

Corallodendron, L. (1735)=*Erythrina*, L. (1737).

This is a Systema name.

Cracca, L. (1747)=*Tephrosia*, Pers. (1807).

Emerus, Burm. (1737)=*Sesban*, Adans. (1763).

Falcata, Gmel. (1791)=*Amphicarpa*, Ell. (1818).

This is in my view unavailable, because *Falcata* was used by Rivinus, in Rupp's Flora Jena, Ed. 2 (1745) for species now referred to *Medicago*. *Amphicarpa*, Ell. (Sept. 1818) appears to be antedated a few months by *Amphicarpon*, Raf. (Jan. 1818), and has been changed to *Xypherus*, Raf. Journ. Phys. lxxxix. 260. (1819).

Fevilléea, L. (1735), not L. 1737=*Inga*, Scop. (1777)=*Zygia*, P. Br. (1756).

This is another Systema name which should not be taken up. Kuntze further proposes to include in it *Albizzia*, Duraz., *Pithecolobium*, Mart., *Annesleya*, Salisb., *Enterolobium*, Mart., and *Calliandra*, Benth., in which we feel perfectly confident that he will not be supported.

Ichthyomethia, P. Br. (1756)=*Piscidia*, L. (1759).

This has already been pointed out by Prof. Hitchcock, in a recent number of "Garden and Forest."

Kuhnistera, Lam. (1789)=*Petalostemon*, Michx. (1803).

Lotodes, Sieg. (1736)=*Psoralea*, L. (1742).

This date is one year in advance of the Genera Plantarum.

Medica, L. (1735)=*Medicago*, L. (1737).

A Systema name.

Meibomia, Möhr. (1736); Heist. (1748)=*Desmodium*, Desv. (1813).

Patagonium, Schrank (1808)=*Adesmia*, DC. (1825).

Phaseolodes, Mill. (1737)=*Kraunhia*, Raf. (1808)=*Wistaria*, Nutt.

Sertula, L. (1735)=*Melilotus*, L. (1737).

A Systema name.

Speisia, Neck. (1790)=*Oxytropis*, DC. (1802).

Stizolobium, P. Br. (1756)=*Mucuna*, Adans. (1763).

Ternatea, L. (1735)=*Clitoria*, L. (1737).

A Systema name.

Tragacantha, L. (1735)=*Astragalus*, L. (1737).

Another Systema name.

Basilima, Raf. (1815)=*Sorbaria*, Ser. (1825)=*Schizonotus*, Lindl.

Already pointed out by Professor Greene (Fl. Fran. 57, Mar. 30, 1891).

Dryadæa, L. (1735)=*Dryas* (1737).

Filipendula, L. (1735)=*Ulmaria*, Ludw. (1737).

Systema names.

Luetkea, Boug. (1831)=*Eriogynia*, Hook. (1833).

Opulaster, Med. (1799)=*Physocarpus*, Camb. (1824).

Schizonotus, Raf. (1836)=*Holodiscus*, Maxim.

Already discussed by Professor Greene, in Pittonia ii. 65-67, where it is maintained that Lindley's *Schizonotus*, (1830), nullifies the homonym of Rafinesque.

Therofon, Raf. (1828)=*Boykinia*, Nutt. (1834), not Raf. (1825).

Stellaria, Ludw. (1737)=*Callitriche*, L. (1748).

Chytraculia, P. Br. (1756)=*Calyptranthes*, Sw. (1788).

Murtughas, L. (1747)=*Lagerstræmia*, L. (1759).

Antogœringia, Kuntze=*Stenosiphon*, Spach. (1835), not *Stenosiphonium*, Nees. (1832).

Isnardia, L. (Beginning of 1837)=*Ludwigia*, L. (End of 1837).

Papaya, L. (1735)=*Carica*, L. (1737).

A Systema name.

Cactus, L. (1735)=*Mamillaria*, Haw. (1812), not Stackh. (1809). =*Melocactus*, Ludw. (1737).

This is the Systema application of *Cactus*, and in my opinion should not be taken up. The application of *Cactus* in the Genera Plantarum is probably principally to *Opuntia*.

Halimus, Rumpf. (1748-50)=*Sesuvium*, L. (1759).

Adorium, Raf. (1825)=*Musenium*, Nutt. (1840).

Anidrum, Neck. (1790)=*Bifora*, Hoffm. (1816).

Deeringia, Adans. (1763)=*Cryptotænia*, DC. (1829).

Written *Deringa* by Adanson, corrected as above by Kuntze.

Myrrhodes, Moehr. (1736), Sieg. (1737)=*Anthriscus*, Pers. (1805).

Ptilimnium, Raf. (1818)=*Discopleura*, DC. (1829).

Uraspermum, Nutt. (1818)=*Osmorrhiza*, Raf. (1819). Nuttall's

name is not available, because *Urospermum* was used by Scopoli in 1777 for a genus of Compositæ, and in my view *Osmorrhiza* should stand.

Echinopanax, Dec. & Pl. (1854)=*Fatsia*, Dec. & Pl. (1854).

The first has priority of place.

GAMOPETALÆ.

Caprifolium, L. (1735)=*Lonicera*, L. (1737).

A Systema name.

Obolaria, Sieg. (1736)=*Linnæa*, Gronov. (1737).

This is a year previous to the Genera Plantarum.

Caruelina, Kuntze=*Chomelia*, Jacq. (1763), not L.

Matthiola, L. (1737)=*Guettarda*, L. (1753).

Richardia, L. (1737)=*Richardsonia*, Kunth.

Uragoga, L. (1737)=*Cephaelis*, Sw.

Kuntze puts in here *Psychotria*, L. (1759), noting that it is antedated by *Psychotrophum* and *Myrstiphyllum* of P. Browne (1456); also *Palicourea*, Aubl. *Mapouria*, Aubl., and *Rudgea*, Salisb.

Actinea, Juss. (1803)=*Actinella*, Pers. (1807).

Adopogon, Neck. (1790)=*Krigia*, Schreb. (1791).

Agoseris, Raf. (1817)=*Troximon*, Nutt. (1813), not Gærtn. (1891). See Greene, Pittonia, ii. 176.

Amellus, P. Br. (1756)=*Melanthera*, Rohr. (1792).

Aromia, Nutt. (1840)=*Amblyopappus*, H. and A. (1841).

Cacalia, Burm. (1737)=*Vernonia*, Schreb. (1791).

Carelia, Mœhr. (1736)=*Ageratum*, L. (1737).

Name a year older than the Genera Plantarum.

Ceratocephalus, Burm. (1737)=*Spilanthes*, Jacq. (1763).

Coleosanthus, Cass. (1817)=*Brickellia*, Ell. (1824).

Crassina, Scepin (1758)=*Zinnia*, L. (1759).

Diplogon, Raf. (Jan. 1818)=*Chrysopsis*, Nutt. (1818).

Dr. Kuntze has not been able to find a copy of the "American Monthly Magazine" in Europe.

Distasis, DC. (1836)=*Chætopappa*, DC. (1836).

Both published in the Prodromus. The former has priority of place.

Ecliptica, Rumpf. (1750)=*Eclipta*, L. (1771).

Dr. Kuntze passes Burmann's name *Eupatoriophalacron* (1837) over because it is more than six syllables long.

Eriophyllum, Lag. (1816)=*Bahia*, Lag. (1816).

The former has priority of place and if the two genera are to be united should stand as the name.

Gærtnera, Med. (1785)=*Franseria*, Cav. (1793).

Heleniastrum, Mill. (1739)=*Helenia*, L. (1737)=*Helenium*, L. (1753) not L. (1735).

This mixture comes from starting with the Systema, the *Helenium* of that work being *Inula*, L. (1747). I contend that *Helenia* and *Inula* should be maintained.

Hieracioides, Mœhr. (1736)=*Crepis*, L. (1737).

Name a year in advance of the Genera Plantarum.

Lacinaria, Hill (1762)=*Liatris*, Schreb. (1791).

Mauchia, Kuntze=*Bradburya*, T. and G. (1814), not Raf. (1817).

Psilostrophe, DC. (1839)=*Riddellia*, Nutt. (1841).

Ridan, Adans. (1763)=*Actinomeris*, Nutt. (1818).

Adanson wrote it Ridan; Dr. Kuntze latinizes it to *Ridania*.

Rothia. Lam. (1792)=*Hymenopappus*, Willd. (1803).

Name not available in my view on account of *Rothia* having been used by Schreber in 1791 for another Composite.

Schlectendalia, Willd. (1803)=*Adenophyllum*, Pers. (1807).

Selloa, Spreng. (1819)=*Gymnosperma*, Less. (1832).

Thyrsanthema, Neck. (1790)=*Chaptalia*, Vent. (1800).

Willoughbya, Neck. (1790)=*Mikania*, Willd. (1803).

Dortmanna, L. (1735)=*Lobelia*, L. (1737).

A Systema name.

Pentagonia, Mœhr. (1736); Sieg. (1737)=*Specularia*, Heist. (1748).

Adnaria, Raf. (1817)=*Gaylussacia*, H. B. K. (1818).

This is taken from the description.

Azalea, L. (1735)=*Chamærhodendros*, Kram. (1742)=*Rhododendron*, L. (1753).

Azalea is also described in the Genera Plantarum of 1737, and if the two are to be united it should be under this name.

Brossea, L. (1737)=*Gaultheria*, Kalm. (1751).

Chamæcistis, Œder (1761)=*Loiseleuria*, Desv. (1813)=*Azalea*, Hall (1742).

Chamædaphne, Catesby (1740-43)=*Kalmia*, L. (1751).

Erica, L. (1737)=*Calluna*, Salisb. (1802).

Ericodes, Mœhr. (1736)=*Erica*, L. (1753), not L. 1737, which is *Calluna*, Salisb.

Mœhring's name is a year in advance of the Genera Plantarum. The next name appears to be *Tetralix*, Hall. (1742).

Hydragonum, Sieg. (1736)=*Cassandra*, Don. (1834).

Name a year ahead of the Genera Plantarum.

Pseva, Raf. (1809)=*Chimophila*, Pursh. (1814).

Monotropsis, Schwein. (1817)=*Schweinitzia*, Ell. (1818).

Pterosporopsis, Kell.=*Sarcodes*, Torr. (1853), not *Sarcodum*, Lour. (1790).

Anonymos, Gronov. (1739)=*Galax*, L. (1753).

Limonium, Mœhr. (1736), Ludw. (1737)=*Statice*, Willd. (1809).

Statice is, however, in Linnæus' Genera of 1737.

Statice, Mœhr. (1736), Ludw. (1737)=*Armeria*, Willd. (1807), not L. (1735).

Meadia, Catesby (1748)=*Dodecatheon*, L. (1751).

Nummularia, Gron. (1739)=*Steironema*, Raf. (1820).

Tinus, Burm. (1737)=*Ardisia*, Sw. (1788).

Lyciodes, L. (1738)=*Bumelia*, Sw. (1788).

Eugeniodes, L. (1747)=*Symplocos*, L. (1762).

Adelia, P. Br. (1756)=*Forestiera*, Poir. (1811).

Centaurodes, Mœhr. (1736)=*Centaureum*, Hall (1745)=*Erythræa*, Neck. (1790).

Mœhring's name is a year ahead of the Genera Plantarum. *Centaureum* is unavailable on account of the Linnæan *Centaurea*, and so I think Necker's name (spelled first *Erithrea*), should stand.

Nymphodes, Ludw. (1737)=*Limnanthemum*, Gmel. (1769).

Shultzia, Raf. (1808)=*Obolaria*, L. (1737), not Sieg. (1736), which is *Linnæa*, Gron.

Siegesbeck's name is a year older than the Genera Plantarum and for that reason not to be brought in, in my opinion.

Tetragonanthus, Gmel. (1769)=*Halenia*, Borck. (1796).

Armeria, L. (1735)=*Phlox*, L. (1737).

A Systema name.

Navarretia, R. & P. (1794) = *Gilia*, R. & P. (1794) = *Collomia*, Nutt.

The first of Ruiz and Pavon's names has priority of place over the second, and should be used if the genera are united.

Macrocalyx, Trew. (1761) = *Ellisia*, L. (1763).

Marilaunidium, Kuntze = *Nama*, L. (1759), not L. 1747.

Nama, L. (1747) = *Hydrolea*, L. (1762).

Cerinthodes, Ludw. (1737) = *Mertensia*, Roth. (1797).

Cynoglossospermum, Sieg. (1736) = *Lappula*, Hall. (1745) = *Echinospermum*, Lehm.

Haller's name is in my opinion the first available.

Lithocardium, L. (1735) = *Cordia*, L. (1737).

A Systema name.

Morelosia, Llav. & Lex. (1824) = *Bourreria*, P. Br. (1756), not *Beurera*, Ehret. (1755). *Bourreria* and *Beurera* are named for the same man.

Volvulus, Med. (1791) = *Calystegia*, R. Br. (1810).

Physalodes, Bœhm. (1760) = *Pentagonia*, Fabr. (1759) = *Nicandra*, Adans. (1763).

Dr. Kuntze does not use Fabricius' name here because Mœhring employed Pentagonia for a different plant in 1736. This is, however, a year ahead of the Genera Plantarum and in my view leaves *Pentagonia*, Fabr. free for this genus.

Adenostegia, Benth. (1836) = *Cordylanthes*, Nutt. (1846).

Afzelia, Gmel. (1791) = *Seymeria*, Pursh. (1814).

Capraria, L. (1737) = *Scoparia*, L. (1753).

Conradia, Nutt. (1834) = *Macranthera*, Torr. (1835).

Name not available on the principle "once a synonym always a synonym," for *Conradia* was employed by Martius in 1829 for another plant.

Fistularia, L. (1735) = *Rhinanthus*, L. (1737).

A Systema name.

Globifera, Gmel. (1791) = *Micranthemum*, Michx. (1803).

Monniera, P. Br. (1756) = *Herpestis*, Gærtn. (1805).

Stemodiacra, P. Br. (1756) = *Stemodia*, L. (1759).

Xuarezia, R. & P. (1794) = *Capraria*, L. (1753), not L. 1737.

Gelseminum, Weinm. (1742) = *Tecoma*, Juss. (1789). Not to be confounded with *Gelsemium*, Juss., which is a Loganiaceous genus.

Dyschoriste, Nees. (1832)=*Calophanes*, Nees. (1833).
Camara, L. (1735)=*Lantana*, L. (1737).
A Systema name.
Leptostachya, Mitch. (1848)=*Phryma*, L. (1751).
Agastache, Gronov. (1762)=*Lophanthus*, Benth. (1834).
Clinopodium, L. (1735)=*Calamintha*, Mœnch. (1794).
Glechoma, L. (1735)=*Nepeta*, L. (1737).
Systema names.
Hedyosmos, Mitch. (1748)=*Cunila*, L. (1803), not *Cunila*, L. (1737).
Kœllia, Mœnch. (1794)=*Pycnanthemum*, Michx. (1803).
Ladanum, L. (1735)=*Galeopsis*, L. (1737).
A Systema name.
Mesosphærum, P. Br. (1756)=*Hyptis*, Jacq. (1786).

APETALÆ.

Allionia, Loefl. (1758)=*Oxybaphus*, L'Her. (1797).
Xeræa, L. (1735)=*Gomphrena*, L. (1737).
A Systema name.
Allenrolfea, Kuntze=*Spirostachys*, S. Wats. (1874), not Sternb. (1866). Prof. Greene puts this into *Salicornia*.
Lerchea, Hall, (1751)=*Suæda*, Forsk. (1775).
Tithonia, L. (1735)=*Rivina*, L. (1737).
A Systema name.
Helxine, L. (1735 and 1737)=*Fagopyrum*, Gærtn.
Uvifera, L. (1738)=*Coccoloba*, L. (1759).
Benzoin, Ludw. (1737)=*Lindera*, Thunb. (1783).
Malapoenna, Adans. (1763)=*Tetranthera*, Jacq. (1797).
Lepargyrea, Raf. (Jan. 1818)=*Shepherdia*, Nutt. (End of 1818.)
See Greene, Pittonia, ii. 121.
Nestronia, Raf. (1836)=*Buckleya*, A. Gray (1843).
Ricinocarpus, Burm. (1737)=*Acalypha*, L. (1753), not *Acalypha*, L. (1737.)
Diasperus, L. (1735)=*Phyllanthus*, L. (1737).
A Systema name.
Ioxylon, Raf. (1817)=*Maclura*, Nutt. (1818).
See Greene, Pittonia, ii. 122.
Urticastrum, Mœhr. (1736), Heist. (1748)=*Laportea*, Gaud. (1826).

Ramium, Rumpf. (1747) = *Bœhmeria*, Jacq. (1763).
Adicea, Raf. (1815) = *Pilea*, Lindl. (1821).
Scoria, Raf. (1808) = *Carya*, Nutt. (1818).

I have already shown that *Scoria* is a misprint for *Hicoria*. (See Bull. Torr. Club, xv. 227). Dr. Kuntze does not seem to have seen my paper.

MONOCOTYLEDONES.

Helleborine, Martyn. (1736) = *Cathea*, Salisb. (1812) = *Calopogon*, R. Br. (1813).

Martyn's name is a year ahead of the Genera Plantarum. I think Salisbury's name should stand.

Neottia, L. (1735) = *Corallorhiza*, Ludw. (1737), R. Br. (1813).

A Systema name.

Diphryllum, Raf. (1808) = *Listera*, R. Br. (1813).
Limnodorum, Ludw. (1737) = *Cephalanthera*, L. C. Rich. (1818) = *Epipactis*.
Orchiodes, Trew. (1736); Sieg. (1737) = *Goodyera*, R. Br. (1813).
Gyrostachys, Pers. (1807) = *Spiranthes*, Rich. (1818) = *Ibidium*, Salisb. (1812).
Leptorchis, Thou. (1809) = *Liparis*, Rich. (1818).
Malaxis, Sw. (1788) = *Achroanthes*, Raf. (1808) = *Microstylis*, Nutt. (1818).
Heritiera, Gmel. (1791) = *Lachnanthes*, Ell. (1817).

Unavailable from my point of view, because *Heritiera* was used by Aiton in 1789 for a different plant.

Bermudiana, L. (1735) = *Sisyrinchium*, L. (1737).

A Systema name.

Gemmingia, Fabr. (1759) = *Belamcanda*, Adans. (1763).
Chrosperma, Raf. (1825) = *Amianthium*, A. Gray (1837).
Sabadilla, Brandt. & Ratzeb. (1836) = *Schœnocaulon*, A. Gray, (1837).
Tovaria, Neck. (1790) = *Smilacina*, Desf. (1798). *Tovara*, Adans., based on *Polygonum Virginianum*, dates from 1763, and interferes with the use of Necker's name.
Asphodeliris, Mœhr. (1736) = *Tofieldia*, Huds. (1778).

Name a year in advance of the Genera Plantarium.

Unifolium, Mœhr. (1736); Ludw. (1737) = *Maianthemum*, Wigg. (1780).

Schollera, Schreb. (1791) = *Heteranthera*, R. & P. (1794).

Juncodes, Mœhr. (1736); Sabbati (1745) = *Cyperella*, Kram. (1744) = *Luzula*, DC. (1805). Kramer's name is, in my opinion, from these citations the first available.

Washingtonia, Wendl. (1879) = *Pritchardia*, Seem. & Wendl. (1861), not Unger (1840). But *Washingtonia* was applied to *Sequoia gigantea* by Winslow in 1854, and is likely enough to be maintained as a genus at any time.

Spathyema, Raf. (1808) = *Symplocarpus*, Salisb. (1812). See Greene, Pittonia ii. 184.

Dupatya, Vell. (1825) = *Pæpalanthus*, Mart. (1833-'35).

Mariscus, Hall. (1742) = *Cladium*, R. Br. (1756).

Iria, Rich. (1805) = *Fimbristylis*, Vahl (1806). Published as a section.

Achyrodes, Bœhm. (1760) = *Lamarckia*, Mœnch (1794).

Bulbilis, Raf. (1819) = *Buchloë*, Engelm.

Campulosus, Desv. (1810) = *Ctenium*, Panz. (1813).

Capriola, Adans. (1763) = *Cynodon*, Rich. (1805).

Chamæraphis, R. Br. (1810) = *Setaria*, Beauv. (1812).

Chloropsis, Hack. (1887) = *Trichloris*, Fourn. (1881), not *Trichlora*, Baker (1877).

Corycarpus, Zea (1806) = *Diarrhena*, Beauv. (1812).

Dactylodes, Zan. (1742) = *Tripsacum*, L. (1759).

Hackelochloa, Kuntze = *Manisurus*, Sw. (1788), not *Manisurus*, L. (1771).

Hippagrostis, Rumpf (1749) = *Oplismenus*, Beauv. (1807).

Homalocenchrus, Mieg. (1768) = *Leersia*, Sw. (1788). See my note in Trans. N. Y. Acad. Sci. ix. 13 (1889).

Hystrix, Mœnch. (1794) = *Asprella*, Willd. (1809).

Manisuris, L. (1771) = *Rottbœllia*, L. f. (1779).

Nazia, Adans. (1763) = *Tragus*, Hall (1768).

Panicularia, Fabr. (1763) = *Glyceria*, R. Br. (1810).

Rhabdochloa, Beauv. Agrost. 84 (1812) = *Leptochloa*, Beauv. loc. cit. 71. Kuntze accepts *Rhabdochloa* because Beauvois described five species under that genus and only three under *Leptochloa*. The latter has priority of place, however, and

in my opinion should be maintained.

Schmidtia, Tratt. (1816)=*Coleanthus*, Roem. & Schult. (1817).

Sieglingia, Bernh. (1800)=*Triodia*, R. Br. (1810).

Sorgum, L. (1735)=*Andropogon*, L. (1753).

This is a Systema name. *Schœnanthum*, Rumpf. (1747), would appear from Dr. Kuntze's citation to be the first name available after the Systema, if these grasses are to be regarded as congeneric.

Thalysia, L. (1735)=*Zea*, L. (1737). A Systema name.

GYMNOSPERMÆ.

Palmifolia, Trew (1752)=*Zamia*, L. (1763).

PTERIDOPHYTA.

Dryopteris, Amman (1739)=*Aspidium*, Sw. (1800).

Phyllitis, Sieg. (1736); Deering (1738)=*Scolopendrium*, Adans. (1763).

Pterinodes, Sieg. (1736)=*Filicastrum*, Amm. (1739)=*Struthiopteris*, Hall. (1842)=*Onoclea*, L. (1753).

Spicant(a), Hall. (1745)=*Lomaria*, Willd. (1809).

Calamistrum, L. (beginning of 1737)=*Pilularia*, L. (end of 1737).

Zaluziankya, Neck. (1775)=*Marsilea*, L. (1753), not *Marsilea*, L. (1737), which is said to be *Salvinia*.

Lycopodiodes, Dill. (1741)=*Selaginoides*, Dill. (1741)=*Selaginella*, Beauv. (1805).

Calamaria, Dill. (1741)=*Isoetes*, L. (1751).

BRYOPHYTA.

There appear to be no substitutions here that have not already been taken up. Most of them suggested are in Hepaticæ, and have been discussed by Professor Underwood in his paper on the North American plants of that order.

THALLOPHYTA.

The discussion of the treatment of Algæ, Fungi and Lichens we prefer to leave to others. N. L. BRITTON.

Index to Recent Literature relating to American Botany.

Address at the Washington Meeting of the American Association for the Advancement of Science. George Lincoln Goodale. August, 1891 (reprint).

Artificial Keys to the Genera and Species of Mosses Recognized in Lesquereux and James' Manual of the Mosses of North America. Additions and Corrections by Charles R. Barnes. (Trans. Wisc. Acad. Sci. and Let. viii. 163-167, reprinted.)

These four pages of corrections are sufficient evidence that the keys are being used, and therefore serving the purpose they were intended for. We regret that in reprinting these corrections both sides of the paper should have been used, also that one important fact determined by me should have been omitted. In *Orthotrichum Douglassii* the stomata are superficial, as shown by the type preserved in Duby's collection in the Boissier Herbarium at Geneva, therefore the foot note on page 164 and correction for page 48 should be omitted. Copies of this sheet may be had by those having the keys, on application to the author accompanied by a two-cent stamp. E. G. B.

Bromeliaceen—Die von Bernoulli und Cario 1866-1878 *in Guatemala gesamelten.* L. Wittmack. (Engler's Bot. Jahrb. xiv. Beiblatt 32, 1891).

Æchmea Bernoulliana, A. Iguaua, Pitcairnia Carioana, Tillandsia remota and *T. Cucaënsis* are described as new.

Carnation Disease—The Specific Germ of the. J. C. Arthur. (Proc. Am. Ass. Ad. Sci. xxxix. 334).

Catalogue of the Phænogamous and Vascular Cryptogamous Plants in the Vicinity of St. Louis, Mo. Henry Eggert. (Pamph. 8vo. pp. 16).

This is a list of the plants growing within a radius of about forty miles around St. Louis. It is arranged alphabetically and about 1,100 species are enumerated, most of them observed by the author himself since 1874. *Parthenium repens,* Eggert, is described as new, with the following characters: "Low, 1 to 2 feet high, rough pubescent with spreading hairs, corymbosely branched above, the branches terminated by a loose cyme of rather few heads. Rootstock creeping, forming runners. April to

July." *Parthenium integrifolium* is stated to have the "stem below bulbously thickened, with many thickened root fibres." Hybrids are noted between *Vernonia Arkansana, V. fasciculata* and *V. Noveboracensis.* N. L. B.

Climate and Plants. L. H. Pammel. (Monthly Review of the Iowa Weather and Crop Service, ii. 6).

Continuity of Protoplasm through the Cell Wall of Plants. W. J. Beal and J. W. Toumey. (Proc. Am. Ass. Ad. Sci. xxxix. 332).

Development and Function of the So-called Cypress "Knees," together with a Short Consideration of the Natural Habitat of the Tree. W. P. Wilson. (Proc. Am. Ass. Ad. Sci. xxxix 329).

Development of the Sporocarp of Griffithsia Bornetiana. V. M. Spalding. (Proc. Am. Ass. Ad. Sci. xxxix. 327).

Diatoms—The Classification of. C. M. Vorce. (Am. Month. Mic. Journ. xii. 150).

This is a criticism of the paper by Rev. Frederick B. Carter on Diatoms: their Life-History and Classification, in which the writer refers to the omission of the genera *Actinocyclus, Amphiprora* and *Rhizœolenia.* He also expresses regret that the classification of H. L. Smith was not adopted rather than that given in the Micrographic Dictionary. C. H. K.

Diseases of Trees Likely to Follow Mechanical Injuries. W. G. Farlow. (Read before the Massachusetts Horticultural Society, March 7, 1891. Pamphlet 15 pages).

A brief untechnical explanation of the structure of a tree-trunk, with instructions for pruning, protecting and preventing the growth of fungi, and a plea for the planting and care of trees in towns and cities.

Distribution of Hepaticæ of North America. Lucien M. Underwood. (Proc. Am. Ass. Ad. Sci. xxxix. 298).

Distribution of the Trees, Shrubs and Vines of Jackson Co., Miss. B. F. Bush. (Kansas City Scientist, v. 161).

Euphorbia—On the Seed Coats of the Genus. L. H. Pammel. (Proc. Am. Ass. Ad. Sci. xxxix. 328.)

Ferns—George E. Davenport. Read before the Mass. Hort. Soc., March 28th, 1801. Reprint.

First Impressions of the Vegetation of British Guiana. David Paul. (Trans. Bot. Soc. Edin. xix. 170).

Flora Brasiliensis, Fasciculus CX. Bromeliaceæ, I. Carolus Mez. This first part of the *Bromeliaceæ* of the Brazil Flora deals with the genera *Rhodostachys*, Phil., *Bromelia*, L., *Cryptanthus*, Kl., *Nidularium*, Lem., *Canistrum*, Morr., *Prantleia*, Mez. (new genus), *Aræococcus*, Brongn., *Hohenbergia*, Schult., *Wittmackia*, Mez. (new genus) and *Streptocalyx*, Beer. Many new species are described, and 12 plates illustrate the work.

Flora de Costa Rica—La. H. Polakowsky. Translated by Manuel Arago Peralta (Anales del Instituto fisico-geografico Nacional, San Jose de Costa Rica, ii. 1890).

Flora Franciscana, Part II. Edward L. Greene. (8vo. pp. 129-280. Issued Dec. 21st, 1891).

This continuation of Professor Greene's important work includes descriptions of the species and genera in twenty-four orders. A recapitulation of the principal novelties described and changes in nomenclature proposed is as follows: *Polygonum Kelloggii*, is a new species; *Emex australis*, Steinh. is an introduced Australian plant; *Eriogonum latifolium*, Smith (1815) replaces *E. arachnoideum*, Esch. (1826); *Eriogonum hirtiflorum*, A. Gray and *E. spergulinum*, A. Gray, are referred to *Oxytheca; Chenopodium carinatum* is an introduced species from Australia; *Monolepis Nuttalliana*, Greene, replaces *M. chenopodioides*, Moq. the former being the older specific name available; the genus *Spirostachys*, S. Wats., is referred to *Salicornia;* four species described under *Claytonia* are transferred to *Montia; Tillæa angustifolia*, var. *Bolanderi*, S. Wats., is raised to specific rank; *Saxifraga ranunculifolia*, Hook., is referred to *Boykinia; Œnothera grandiflora*, Ait., is maintained as a species; *Œ. arguta* and *Œ. hirtella*, are described as new; *Callitriche palustris*, L (1753) is taken up for *C. verna*, L (1755); *Ammannia humilis*, Michx. is retained in that genus, its reference to *Rotala* by Kœhne being questioned; *Mentzelia nitens* is a new species; the genus *Lesquerella*, S. Wats. is referred to *Physaria*, Nutt.; *Alyssum alyssoides* is the older specific name for *A. calycinum; Streptanthus Parryi, S. orbiculatus, S. Mildredæ* and *S. secundus* are described as new; *S. flavescens*, Hook., is transferred to *The-*

lypodium as *T. Hookeri ; Cardamine cardiophylla* is new, as are *Nasturtium occidentale* and *N. dictyotum ; Cheiranthus capitatus* is transferred to *Erysimum ; Capnorchis* and *Capnodes* are the generic names taken up respectively for *Diclytra* and *Corydalis.*

N. L. B.

Flora of Cacouna, P. Q—Notes on the. D. P. Penhallow. (Canadian Rec. Sci. iv. 432).

Flora of Colorado—Additions to. Alice Eastwood. (Zoë, ii. 226).

A list of 113 plants is given, of which *Aquilegia ecalcarata, Thelypodium aureum, Encelia nutans* and *Chænactis scaposa* are described as new.

Flora of the Olympics. L. F. Henderson. (Zoë, ii. 253).

Report of the Botanist of the O'Neil Expedition, from observations taken during six weeks stay with the party, and incidents of general interest. An interesting account of the flora of the region, as well as a list of the five hundred species collected.

Forest Trees of Indiana. Stanley Coulter. (Proc. Am. Ass. Ad. Sci. xxxix. 330).

Fresh Water Algæ of Maine. William West. (Journ. Bot. xxix. 353.)

The new species described are: *Sphærozosma punctulatum, Closterium subangustatum*, and *Penium annulare.*

Geographical Distribution of North American Cornaceæ. John M. Coulter. (Proc. Am. Ass. Ad. Sci. xxxix. 349).

Geographical Distribution of North American Plants—The General. N. L. Britton. (Proc. Am. Ass. Ad. Sci. xxxix. 322).

Geographical Distribution of the Grasses of North America. W. J. Beal. (Proc. Am. Ass. Ad. Sci. xxxix. 312).

Geographical Distribution of North American Umbelliferæ. John M. Coulter. (Proc. Am. Ass. Ad. Sc. xxxix. 292).

Isoetes—Contributions to the Life History of. Douglas H. Campbell. (Proc. Am. Ass. Ad. Sc. xxxix. 333).

Isopyrum biternatum—Notes upon. C. W. Hargitt. (Proc. Am. Ass. Ad. Sci. xxxix. 347).

Lazrea Mexicana—The Leaves and Stipules of. John W. Wilson. (Trans. Bot. Soc. Edin. xix. 185.)

Lepismium dissimile, n. sp. G. A. Lindberg. (Gartenflora, xxxix. 148-153, figs. 37, 38).

List of California Marine Algæ, with Notes. C. L. Anderson. (Zoë, ii. 217).

List of the Indigenous Ferns of the Vicinity of Rochester, with Notes. C. W. Seelye. (Proc. Rochester Acad. Sc. i. 186. reprint).

Lobelia laxiflora, H.B K. var. angustifolia, DC. *Apuntes para el estudio de la accion fisiologica y terapeutica de la.* José Remirez (El Estudio, iv. 8).

Mariposa County as a Botanical District. J. W. Congdon. (Zoë, ii. 234).

Mariposa Lilies of Colorado—The. Alice Eastwood. (Zoë, ii 201).

Mosses from the Pribylov Islands, Behring Sea, collected by James M. Macoun. (Ottawa Naturalist, 179, 1892).

Six new species and varieties are described by N. C. Kindberg in the following genera: *Ceratodon, Didymodon, Webera, Bryum and Polytrichum.*

Musci Exotici Novi vel minus cogniti. F. Renauld et J. Cardot. (Bull. Soc. Roy. Bot. Belg. xxix. 161–186, 1890, to be continued).

This is the first of a series of contributions to the moss flora of Madagascar, Reunion, Haiti and Costa Rica. From the last named are described one species in each of the following genera: *Hyophila, Bartramia, Philonotis, Brachyhymenium, Pilotrichella, Neckera, Porotrichum, Raphidostegium* and *Trichostelium.* Illustrations of all the new species are promised.

New Species and Notes of Utah Plants. Marcus E. Jones. (Zoë, ii. 336).

The proposed new species are *Cleomella Palmerana, Astragalus Coltoni, A. asclepiadoides, A. sabulosus, A. argillosus, A. Sileranus, A. desperatus, Pencedanum lapidosum, Cymopterus decipiens, Bigelovia gloreosa, Aster venustus, Verbesina scaposa, Bahia desertorum, Gilia Howardi, Hesperanthes albomarginata.* Several new varieties are described as well as several species reduced.

Notes on a Monograph of the Genus Lechea. N. L. Britton. (Proc. Am. Ass. Adv. Sci. xxxix. 331).

Notes on Plants Collected by Dr. Edward Palmer at La Paz, Lower California, in 1890. F. N. Rose. (Proc. Am. Ass. Ad. Sci. xxxix. 347).

Notes upon the Crystals in Certain Species of the Arum Family. Wm. R. Lazenby. (Proc. Am. Ass. Ad. Sci. xxxix. 332).

Observation on the Method of Growth of the Prothallia of the Filicineæ with Reference to their Relationships. Douglas H. Campbell. (Proc. Am. Ass. Ad. Sci. xxxix. 333).

Phacelia—A new. T. S. Brandegee. (Zoë, ii. 252). *Phacelia* (*Euphacelia*) *Eisenii* from Fresno Co., California.

Philadelphus microphyllus. H. Zabel. (Gartenflora, xxxix. 39–41, fig. 10).

Philosophy of the Crossing of Plants considered in reference to their Improvement under Cultivation. L. H. Bailey. Lecture at the public meeting of the Massachusetts State Board of Agriculture, 1892. (Reprint).

Pilcomayo Expedition, Preliminary Notice. J. Graham Kerr. (Trans. Bot. Soc. Edinburg, xix. 128).

Pinus monticola on the Californian Sierras. (Gard. and For. v. 5 and 7. Two illustrations).

Posadæa, nouveau Genre de la Famille des Cucurbitacees. Alfred Cogniaux. (Bull. Acad. Roy. Belg. (III). xx. 475-478). Description of a new genus and species from Colombia.

Potato Scab, a Bacterial Disease. H. L. Bolley. (Proc. Am. Ass. Ad. Sc. xxxix. 334).

Preliminary Notes on a New and Destructive Oat Disease. B. T. Galloway. (Proc. Am. Ass. Ad. Sci. xxxix. 333).

Preliminary note on the genus Rynchospora in North America. N. L. Britton. (Proc. Am. Ass. Ad. Sci. xxxix. 331).

Red Snowberry or Indian Currant. (Meehan's Month. i. 83, illustrated).

Report on the Use of Maize (*Indian Corn*) *in Europe, and the Possibilities of its Extension.* (Pamph. pp. 36, U. S. Dept. Agric. Wash., D. C., 1891).

In addition to the economic statistics this pamphlet contains much of general interest in regard to our national grain and its gradual acceptance as a food product in Europe.

Revue Critique des Espèces du Genre Acer. Alfred Waesmael.

(Bull. Soc. Bot. Belg. xxix. 17-65).

This is an annotated list of all the species of *Acer* recognized by the author. He differs materially from the last published monograph of the genus—that of Herr. Pax in Engler's Bot. Jahr. 1885–1886, with supplemental notes in the same journal in 1889—recognizing considerably fewer species, but an enormous number of sub-species, varieties and sub-varieties, many of them purely garden sports. As regards our North American species, both he and Herr. Pax, from paucity of material and unfamiliarity with the trees themselves and their geographical distribution, have clearly fallen into many errors, and we cannot see that the paper here noticed is of any value to American botany.

Relation of the Mexican Flora to that of the United States. Sereno Watson. (Proc. Am. Ass. Ad. Sc. xxxix. 291).

Rusbya, a new genus of the Vacciniaceæ from Bolivia. N. L. Britton. (Proc. Am. Ass. Nat. Sci. xxxix. 332).

Saccorhiza dermatodea—Concerning the Life-history of. W. A. Setchell. (Proc. Am. Acad. Arts and Sci. xxvi. 177-217, 1891, reprinted).

An interesting contribution from Prof. Farlow's laboratory, describing the histology and morphology of a circumpolar alga, with its bibliography and history; illustrated by two finely lithographed plates.

Spiræa discolor, var. *ariæfolia.* J. G. Jack. (Gard. and For. iv. 615, 616; fig. 98).

Thelephorei—Notes on. M. C. Cooke. (Grevillea, xx. 33-35).

New Brazillian species are described in the genera *Beccariella* and *Hypolyssus.*

Uncinula spiralis—Observations on the life-history of. B. T. Galloway. (Proc. Am. Ass. Ad. Sci. xxxix. 333).

Uromyces trifolia—The trimorphism of. J. K. Howell. (Proc. Am. Ass. Ad. Sci. xxxix. 330).

Weeds—The migration of. Byron D. Halsted. Proc. Am. Ass. Ad. Sci. xxxix. 304).

Work of the Botanical Division of the Department of Agriculture. F. V. Coville. (Proc. Am. Ass. Ad. Sci. xxxix. 348).

Proceedings of the Club.

MEETING OF JAN. 27TH, 1892.

Vice-President Dr. T. F. Allen in the chair and forty-three persons present.

The Committee appointed to prepare resolutions relative to the death of Dr. F. W. Anderson, reported as follows:

The death in December last, of Dr. F. W. Anderson, a member of this Club, and a botanist of no mean repute, makes it proper that we should take notice of his labors and the loss sustained by our science in his departure. His early life was spent in Montana, where he engaged zealously in making botanical collections, and where he gave special attention to the study of Fungi, Algæ and Mosses in company with Dr. F. D. Kelsey and Mr. R. S. Williams. In these branches of botany he acquired a large knowledge and made extensive collections. He afterwards held a position in the United States Department of Agriculture at Washington, and contributed several valuable articles to botanical magazines upon the subjects to which he had devoted particular attention. For a year he assisted Mr. J. B. Ellis on his plates of Eastern American Pyrenomycetes, and acquired much skill in the drawing of these difficult objects. Subsequently he volunteered to prepare the drawings to illustrate Mrs. N. L. Britton's projected Handbook of the Mosses of the Eastern United States, and was engaged upon them at the time of his death. To this work he devoted all his powers, and his work was so skillful that his place can hardly be filled. At the time of his death he was an Assistant Editior of the *American Agriculturist*, and was highly esteemed by the proprietors and managers of that journal. His botanical collections have been presented by his father, Rev. Jos. Anderson, and his associate, Rev. F. D. Kelsey, to the Herbarium of Columbia College. In view of his death we recommend the passage of the following resolutions:

Resolved (1), That we put on record our high sense of the value of Dr. Anderson's contributions to botanical science.

(2), That we especially regret the loss which we have sustained in a department of botany not easily filled, a nice discrimination in the interpretation and delineation of cryptogamic plants.

(3), That his amiable character, his cheerful disposition and kindly spirit have added to our loss of a worthy scientist, the loss of a most estimable man.

(4), That this preamble and the accompanying resolutions be spread upon our minutes and that a copy of them be transmitted to the family of our late associate.

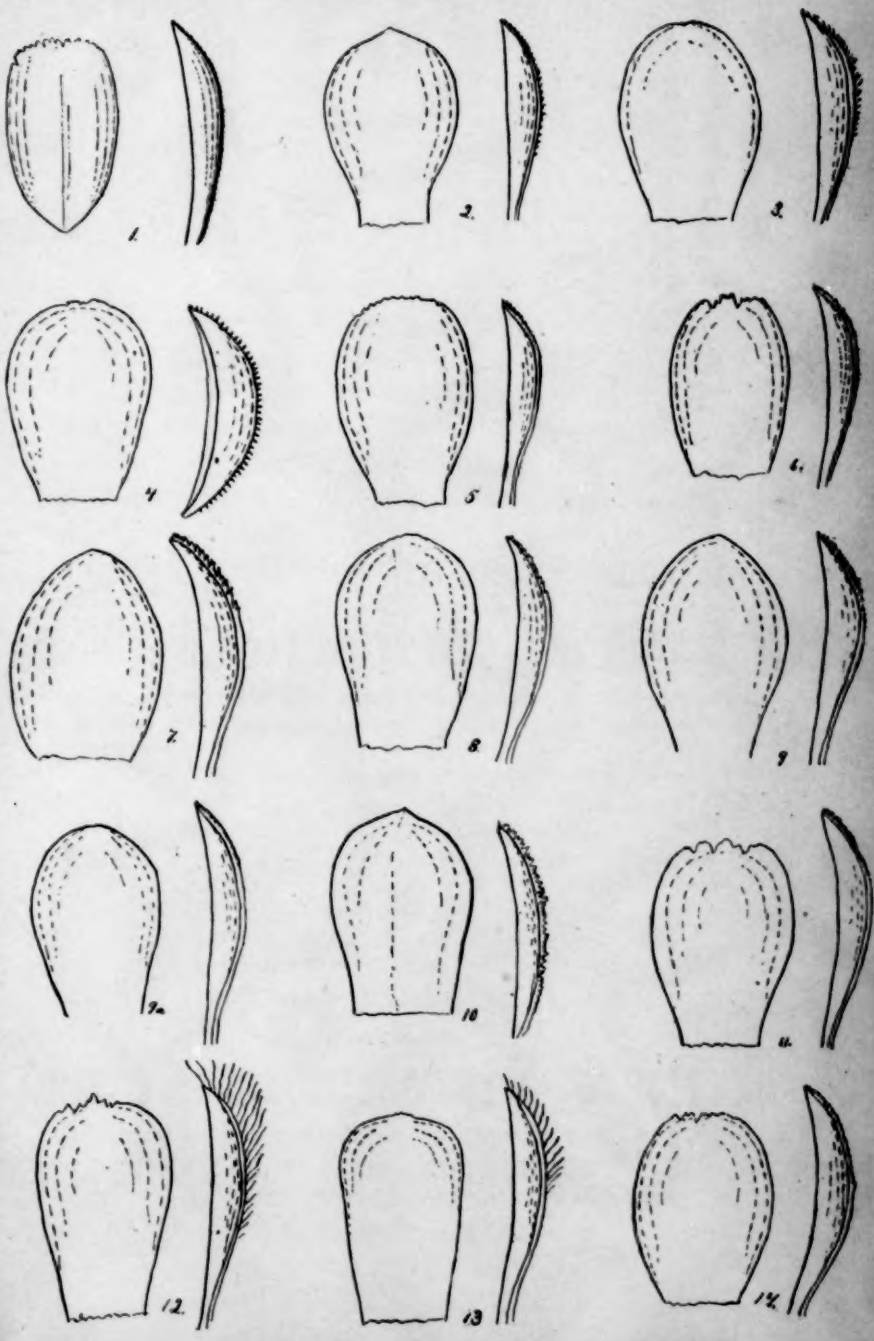
(Signed)

THOMAS MORONG,
ELIZABETH G. BRITTON."

The report was unanimously adopted.

Dr. Britton exhibited a specimen of *Galium sylvestre*, Poll., collected by Mr. C. G. Pringle at Charlotte, Vermont, in 1880. He read extracts from a letter just received from Mr. Pringle, to whom he had applied for information concerning the plant, to the effect that it appeared in grass-fields and in 1887, the last opportunity which Mr. Pringle had to observe it, was as abundant as at first. Dr. Britton had not been able to find any reference in print to the presence of this European species in America.

The announced paper of the evening was read by Miss Grace E. Cooley of Wellesley College; entitled "A Botanist's Impressions of Alaska." The paper was profusely illustrated by lantern views, photographs and herbarium specimens. At the close a vote of thanks was unanimously tendered Miss Cooley for her interesting address.



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